

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Spectrum Policy Task Force Seeks Public
Comment on Issues Related to Commission's
Spectrum Policies

To: The Commission

ET Docket No. 02-135

**COMMENTS OF THE
WIRELESS ETHERNET COMPATIBILITY ALLIANCE**

I. INTRODUCTION

The Wireless Ethernet Compatibility Alliance ("WECA") hereby submits comments on the Federal Communications Commission's ("Commission" or "FCC") Public Notice, ET Docket No. 02-135, entitled "Spectrum Policy Task Force Seeks Public Comment on Issues Related to Commission's Spectrum Policies" ("Public Notice" or "Notice"). Specifically, WECA submits comments on the following issues: market-oriented allocation and assignment policies and international issues.

II. DISCUSSION

WECA is an international trade association formed in 1999 to promote the adoption and commercialization of products built according to the IEEE 802.11 specifications, including Radio Local Area Networks ("RLANs") in the 5 GHz frequency band. Membership in WECA is open to all companies that support the RLAN standards, and current members include virtually all of the major radio manufacturers producing wireless network equipment and marketing such

products in the United States.¹ The membership continues to expand and consists of over 140 companies. WECA's members are closely involved with the development, manufacturing and marketing of RLAN devices, and WECA therefore has particular interest in the questions raised in the Public Notice. WECA believes that the market for RLAN devices will be global and that the Commission should endeavor to ensure that its rules permit the development of a globally mobile workforce. This will also benefit manufacturers of RLAN devices by providing global economies of scale for products, vastly lowering potential costs for consumers and businesses to utilize these devices. Additionally, stable and uniform international rules will enable consistent use and performance for RLANS, enabling seamless operations wherever a user may roam.

Moreover, because WECA has unique access to the vast resources available to its members, it is well positioned to foretell the potential and the capacity needs of IEEE 802.11 compliant devices, including those that operate in the 5 GHz band. Based upon the practical experience gained over the last few years, WECA, on behalf of its members, filed on January 15, 2002, a Petition for Rulemaking ("Petition"), RM-10371, in which it requested that the Commission allocate additional spectrum in the 5 GHz frequency band for use by Unlicensed National Information Infrastructure ("U-NII") devices, including 802.11 compliant products. The Public Notice raises many questions that relate to WECA's Petition, and WECA files these comments to ensure the continuing development of the 5 GHz band, both domestically and throughout the world, to enhance the current and future utility of mobile services.

¹ A complete membership list is available at WECA's website, www.wi-fi.org. Current members include, among others, 3Com, Acrowave, Agere Systems, AMD, Askey, Atheros, Cisco, Colubris, Connexion by Boeing, Dell, Gateway, Global Sun, Intel, Intersil, Melco, MobileStar, Mobilian, Motorola, NextComm, Nokia, Philips, Proxim, Sony, Symbol, Texas Instruments, and Z-Com.

A. Market-Oriented Allocation and Assignment Policies—The Commission should allocate more spectrum for use by unlicensed devices to promote greater efficiency and ensure the highest value use

The Commission notes in the Public Notice that congestion of the 5 GHz spectrum is likely to arise in the future. It then asks whether the anticipated congestion will prevent the spectrum provided for use by unlicensed devices from being put to its highest valued use due to the common aspects of unlicensed use. As explained in its Petition, WECA believes that there will be a shortage of spectrum for unlicensed use in the very near future. A study conducted by the HIPERLAN/2 Global Forum (“H2GF”), on behalf of the European Telecommunications Standards Institute (“ETSI”),² supports WECA’s position. This study demonstrates that there will be a need for 540 MHz of spectrum in the 5 GHz frequency band by 2010 for use within the European Union. Due to the similarity of applications envisioned for 5 GHz U.S. devices and the HIPERLAN/2 devices, as well as the similarity of the assumptions made in the document regarding deployment densities and environments, the conclusions of the ETSI study should be a reliable indicator of IEEE 802.11a spectrum requirements for the U.S. Today, only a total of 300 MHz has been allocated to RLANs in the United States, leaving a spectrum capacity shortage of 240 MHz. The spectrum shortage and the anticipated congestion in the 5 GHz band may result in less than optimal use of the spectrum. To increase the efficient use of the spectrum, manufacturers of RLAN devices must be allowed to develop RLAN devices that can utilize a larger portion of the spectrum.

RLAN devices will be deployed in three different operating environments. First, they will be used in corporate office building networks, where wireless devices may be substituted for wired LAN devices. This environment requires high speed data rates, and the wireless devices

² ETSI, which is a not for profit organization and produces telecommunications standards for use in Europe, developed the HIPERLAN/2 standard.

will ordinarily be stationary while in use. Second, there will be public wireless access networks, where battery-driven devices will be used in most cases, requiring economic power consumption. Although these devices will be used both indoors and outdoors, they will not require the same high Quality of Service (“QoS”) as those used in an office environment. The density will be lower than that of a corporate network, while the geographic area will be greater. Finally, structured wireless networks can link various appliances in home area networks. These networks generally will cover a smaller geographical area than the corporate network, but will require high bandwidth for streaming video, audio and other multimedia information. Spreading wireless LAN energy over a wider spectral band will allow for denser LAN deployment and a greater number of channels, which will allow wireless devices to be employed more efficiently in all three environments discussed above.

It is even more imperative to provide more spectrum when considering that the H2GF’s estimate does not consider the requirements for adjacent channel guard bands, which could add between 5% and 25% to the need for spectrum. If the Commission were to take a pro-active position and provide the necessary spectrum for the most efficient use, the FCC can minimize the number of separate bands it allocates at 5 GHz, minimize the balkanization of spectrum into a multitude of varying bands, and limit the impact of inefficient guard band allocations. Thus, additional spectrum will promote more efficient use of spectrum and enable manufacturers to develop and produce more spectrum efficient RLAN devices. This will ensure that the public receives the most benefit from the use of the electromagnetic spectrum.

The FCC also asked whether the kinds of permissible unlicensed operations should be expanded. WECA does not support the expansion of the types of unlicensed operations without careful technical consideration of the interference effects of such additional uses. Each Part 15

device must not cause interference, nor must it complain about interference. This careful balance is maintained through rigorous analysis of the technical restrictions and requirements necessary for equipment manufacturers to meet to ensure the robustness and viability of uses in the 5 GHz band. However, certain modifications to the current Part 15 of the Commission's rules are both necessary and desirable. To promote the development of efficient RLAN devices and a mature mobile services industry, and also to address the public interest in high quality broadband wireless interconnection, the Commission should modify its rules to provide for licensing by rule for RLAN devices and related equipment, as is contemplated in Part 95 of the Commission's rules. This would create an environment of regulatory certainty, which will result in more competition and the development of cheaper RLAN devices that use the allocated spectrum more efficiently. Additionally, it will permit RLAN devices a higher level of protection from the potential of disruptive additional uses of the 5 GHz band.

B. International Issues

Noting that the United States' domestic spectrum allocation and assignment policies do not exist in a vacuum, the FCC seeks comment on what role international and global considerations should play in domestic spectrum policy. The Commission also asks how, and to what extent, U.S. domestic spectrum policy should be allowed to affect the preparations for regional and international spectrum policy meetings. WECA, whose membership varies from smaller, cutting-edge domestic companies to large multi-national corporations, believes that U.S. leadership in the mobile services is essential to realizing the potential benefits, as expected by the public, of such services. Thus, WECA proposes that the United States implement a sound and compelling domestic spectrum policy that promotes a market-oriented allocation and assignment

approach, and that this framework should be part of the U.S. position taken at all regional and international policy meetings.

It is crucial to the future growth and maturity of the mobile services that spectrum policy is harmonized on a global scale, as mobile services depend on compatibility in all parts of the world. These services could allow people to travel from one continent to another while continuing to use a single device without having to reprogram the device or switch crystals or other parts of the device. WECA therefore strongly favors a U.S. domestic policy that allocates spectrum in the frequency bands most commonly used in the world and on a co-primary basis to afford the same interference and regulatory protection afforded in other parts of the world. To that effect, WECA and the U.S. government have worked together to implement a viable position on the sharing of spectrum between co-primary users in the 5 GHz band.

Additionally, as noted above, WECA has filed a Petition for allocation of additional spectrum in a frequency band that will align the U.S. domestic spectrum with that already allocated for mobile services in Europe. WECA also filed comments in support of a draft proposal recently issued by the FCC's Advisory Committee for the 2003 World Radiocommunication Conference, which is developing the U.S. spectrum policy position for the 2003 World Radiocommunication Conference ("WRC-03") meeting. WECA supports the position that mobile services, including RLAN services, should be allocated spectrum on a co-primary basis. Such an allocation would harmonize the U.S. domestic spectrum policy with the European spectrum policy, and it would ensure that users of mobile services will enjoy a high quality experience despite the increasing demand placed on the current bands by streaming video, audio and other multi-media presentations. It would also allow U.S. manufacturers to

produce products compatible with the world market, thereby promoting U.S. leadership in the global mobile services market.

The WRC-03 process, in fact, dictates that the U.S must take concrete steps to implement a more proactive and forward-looking plan for unlicensed devices at 5 GHz. Indeed, WRC03 Agenda Item 1.21 specifically states that the technical and regulatory requirements of wireless multimedia applications should be studied by ITU-R with a view to facilitate global harmonization. The WRC-03 will even consider the progress of these studies to devise an agenda item for WRC-06, which will focus on global spectrum allocation issues and regulatory work. It is clear that international cooperation with respect to 5 GHz devices and spectrum allocation is progressing rapidly. On April 20, 2001, the Commission stated in a draft preliminary view on Agenda Item 1.21 that the view of the United States on these issues “will be developed when more information is available from the ITU and other entities.”³ This approach is contrary to the express goal of the Commission to provide U.S. manufacturers an opportunity to lead the development of 5 GHz devices. Rather than waiting for other countries to develop their positions on and demands for spectrum in the 5 GHz band, the FCC should allocate additional spectrum immediately to allow U.S. manufacturers to maintain its world leading position in the development and sales of 5 GHz devices.

Additionally, WRC-03 Agenda Item 1.5 seeks to review regulatory provisions and spectrum requirements for new and additional allocations to the mobile, fixed, Earth exploration-satellite and space research services, and to review the status of the radiolocation service in the frequency range 5150 to 5725 MHz. Clearly, the interests of the industries that develop, promote and sell RLAN products are to be considered as part of this process, and WECA has indeed

³ *IWG-1 Draft Preliminary Views on WRC-03* (visited Jan. 15, 2002) <http://www.fcc.gov/wrc-03/files/docs/advisory_comm/wac013.doc>.

participated actively to ensure that these interests are considered as part of the WRC03 process started by Agenda Item 1.5.

As noted above, in addition to the ITU-supported studies, organizations within the European Union are working on an agreement on critical aspects of HIPERLAN/2. The H2GF is finalizing a report that estimates spectrum needs for wireless LANs and recommends that 540 MHz be allocated to RLANs in the 5 GHz band.⁴ It is quite possible that the EU organizations will actively promote the HIPERLAN/2 standard at the WRC03 and WRC06. Consequently, the WRC03 will be critical in establishing U.S. leadership in the global wireless network market. The conference will also be important for establishing a home for IEEE 802.11a products as well as developing sound interference mitigation solutions for other spectrum users. The U.S. needs to provide leadership in the world, particularly in the important field of telecommunications. Thus, it is vitally important that the FCC protect American interests by allocating additional 5 GHz spectrum immediately.

Because the international pressures for spectrum allocation is increasing rapidly, unless the United States takes the lead, the ITU spectrum allocation process may impede development of domestic processes. It is therefore in the U.S. interest to rapidly develop strong U.S. domestic policies and to seek to implement the same through the ITU process.

III. CONCLUSION

For the foregoing reasons, WECA respectfully requests that the Commission: (1) develop an official U.S. domestic spectrum policy position that promotes the allocation of spectrum that, to the greatest extent possible, is globally aligned in the 5 GHz frequency band; and (2) modify

⁴ Although HIPERLAN/2 has currently obtained a bandwidth of only 455 MHz, the HIPERLAN/2 study shows that, by the year 2010, RLANs would require at least 540 MHz.

its current rules such that RLAN devices and related equipment may be licensed by the Commission's rules.

Respectfully submitted,

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